REMARKS

In the Office Action mailed on August 13, 2004, the Examiner reviewed the above-identified U.S. Patent Application, with the results that the abstract was objected to its format, claims 11, 15, 16 and 23 were objected for informalities, and claims 11, 13-14, 17-19, 21-23, 26-28, 33, 35, 37, 38 were rejected under 35 U.S.C. 102(e) as being anticipated by Cai, U.S. Patent 6,501,999; claims 12 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cai, U.S. Patent 6,501,999 in view of Thomas et al., U.S. Patent 5,974,557; claims 15, 25, 39 and 41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cai, U.S. Patent 6,501,999 in view of Atkinson, U.S. Patent 6,088,809; claims 16, 20, 29, 30, 34, 36 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cai, U.S. Patent 6,501,999 in view of Crump, U.S. Patent 5,689,715; and claims 31 and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cai, U.S. Patent 6,501,999 in view of Nicol et al., U.S. Patent 6,141,762 and Suzuki et al., U.S. Patent 6,278,598.

In response, Applicant appreciate Examiner's kindly suggestions on the abstract objection as well as the claim objections and Examiner's elaborated remarks on the claim rejections, and have accordingly amended the abstract, the specification, and the claims as set forth above.

Applicant have to respectfully remark that Cai's patent (being used as the principal prior art to reject Applicant's instant invention) should be invalided as being anticipated under 35 U.S.C. 102(e) by Applicant's U.S. Patent No. 6,341,354 (also the divisional application Sr. No. 10/016,011) and U.S. Patent No. 6,658,576 (allowed by the Examiner, also the divisional application Sr. No. 10/674,104). Both of Applicant's patents have filing dates, i.e., Apr. 16, 1999 and Sep. 29, 1999, ahead Cai's patent, i.e., Dec. 22, 1999. Mostly important are the facts that both of Applicant's patents still copending with Applicant's instant invention are directly in the same field of energy-conserving microprocessors, motherboards and computer systems and have disclosed Cai's claimed invention. Both of Applicant's patents have started with the teaching of keep-alive memory that is firstly disclosed at lines 25-28 and 41-47 on column 7 in Applicant's another U.S. Patent No. 6,098,175, in which the three patents were also copending at one time. More specifically, Applicant's U.S. Patent No. 6,341,354 has recited an energy-conserving motherboard and/or computer system comprising keep-alive microprocessor (222k in Figs. 2, 4 and 6, and 522k in Fig. 5) and main microprocessor (222M in Figs. 2, 4 and 6, and 522M in Fig. 5), keep-alive power-distributing circuitry (220k in Figs. 2, 4 and 6, and 520k in Fig. 5) and main power-distributing circuitry (220M in Figs. 2, 4 and 6, and 520M in Fig. 5), lines 25-31 column 6, lines 14-41 column 7, the specification throughout the context, claims 30 and 31 (reciting an energy-conserving motherboard with a main microprocessor and a keep-alive microprocessor), and claims 1 and 8 (reciting an energy-conserving computer system with a main microprocessor and a keep-alive microprocessor). Also specifically, Applicant's U.S. Patent No. 6,658,576 has recited an energy-conserving computer or communication apparatus comprising keep-alive microprocessor (222k in Figs. 2) and main microprocessor (222M in Figs. 2) with keep-alive power-distributing circuitry 220k and main power-distributing circuitry 220M, and claims 1 and 3, for providing instant communications.

Consequently, Cai's patent (6,501,999) has to be clearly anticipated under 35 U.S.C. 102(e) by both of

Applicant's patents. Under the circumstances, Applicant respectfully consider that Applicant's instant invention cannot be anticipated by the invalided Cai's invention.

Having made the above remarks on Cai, however, Applicant have amended the independent claims 11 and 23 to a much narrower scope by including a third power-distributing circuitry that is arranged for establishing power connection with keep-alive memory circuitry for storing information needed for resuming said first operating function or said second operating function. Now, Applicant's instant invention as amended is closely substantiated by Applicant's allowed prior U.S. Patent Nos. 6,341,354 and 6,658,576. Consequently, Applicant respectfully request the independent claims 11 and 23 and associated dependent claims of the instant invention having a much narrower scope based on Applicant's prior U.S. Patent Nos. 6,341,354 and 6,658,576 be allowed.

As a result of the above amendments on independent claim 11 to further include the addition of the third power-distributing circuitry having power connection with keep-alive memory circuitry, dependent claims 17 and 18 have been cancelled.

It is thus respectfully believed that the rejections to Applicant's claims under 35 U.S.C. §102(e) as being anticipated by Cai, U.S. Patent 6,501,999 are overcome.

As to Thomas et al., U.S. Patent 5,974,557 (cooling fan), its combination with Cai does not teach nor suggest Applicant's amended independent claims 11 and 23 and the associated dependent claims 12 and 24, and teaches away from the claimed invention to the extent that Cai's motherboard has to go through a reboot process when its power to the high-power processor, the cooling fan, the low-power processor and system memory are deactivated.

As to Atkinson, U.S. Patent 6,088,809 (audio), its combination with Cai does not teach nor suggest Applicant's amended independent claims 11 and 23 and the associated dependent claims 15, 25, 39 and 41, and teaches away from the claimed invention to the extent that Atkinson's computer does not have Applicant's claimed standby function having keep-alive memory for storing needed information (also recited in Applicant's allowed prior U.S. Patent Nos. 6,341,354 and 6,658,576) without going through a reboot process and cannot play an audio disc when both of Cai's processors are deactivated.

As to Crump, U.S. Patent 5,689,715 (low power ring for modem), its combination with Cai does not teach nor suggest Applicant's amended independent claims 11 and 23 and the associated dependent claims 16, 20, 29, 30, 34, 36 and 40, and teaches away from the claimed invention to the extent that Cai's motherboard has to go through a reboot process when its power to the low-power processor, the system memory, and the Crump's modem are deactivated.

As to Nicol et al., U.S. Patent 6,141,762 and Suzuki et al., U.S. Patent 6,278,598 (power providing and converting), their combination with Cai does not teach nor suggest Applicant's amended independent claims 11 and 23 and the associated dependent claims 31 and 32, and teaches away from the claimed invention to the extent that Cai's motherboard has to go through a reboot process once the Nicol's or Suzuki's power providing is deactivated for not providing power to the Cai's high-power, low-power processors, and system memory.

In essence, the combined teachings of Cai, Thomas et al., Atkinson, Crump, Nicol et al., and Suzuki et

al. do not teach nor suggest Applicant's amended invention that renders an energy-conserving motherboard or information-processing apparatus having multiple operating functions and said standby function (as supported by Applicant's allowed prior U.S. Patent Nos. 6,341,354 and 6,658,576) (i) instantly accessible without a tedious, time-consuming reboot process, (ii) instantly operable in or from Applicant's standby or sleep state, (iii) instantly operable for producing or recording information from or between optical discs without any need to power Applicant's main microprocessor nor auxiliary microprocessor. Thus, Applicant's invention (claims 11-16 and 19-41) as amended defines patentable novelty and uniqueness over all the references of record.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, including U.S. Pat. No. 6,240,521 to Barber et al., U.S. Pat. No. 6,035,408 to Huang., U.S. Pat. No. 5,834,856 to Tavallaei et al., U.S. Pat. No. 5,036,455 to Atwood. This patent teaches a multiprocessor computer system wherein each processor has its own regulator. However, none of any combinations between Cai and the prior art made of record would provide any lead to suggest Applicant's amended independent claims 11 and 23.

No new matter has been presented by the above amendments. In view of the above amendments and remarks, it is believed that all rejections to Applicant's claims have been overcome, and that Applicant's claims 11-16 and 19-41 define patentable novelty and uniqueness over all the references of record. It is therefore respectfully requested that this patent application be given favorable reconsideration. Should the Examiner have any questions with respect to any matter now of record, Applicant may be reached at (248) 737-0133 or ist_HL@yahoo.com.

Very Respectfully submitted,

By _____
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VERSION WITH MARKINGS TO SHOW CHANGES MADE[1]

In the Specification

The replacement paragraph for the paragraph beginning at line 26 of page 2 is as follows:

In the shutdown state, a conventional computer is clearly inoperable and consumes no power or very little if a keyboard-power-on function is enabled. Although energy waste is eliminated, a computer placed in the shutdown state requires a tedious, time-consuming boot process to regain its normal operating function. On the other hand, the standby or the suspend state is provided for exiting the normal operating state temporarily in order to conserve energy. Both states are often referred to as the so-called sleep state in general. U.S. Patent No. 5,530,879 defines that as compared with the standby state, the suspend state conserves extra power by saving the activities of a computer to its hard-disk drive so as to deactivate a conventional computer further. In a newer version of Windows' operating systems, this approach is used in the so-called hibernation process, which requires a slightly longer time to restore the previous activities as compared with a regular boot process. In contrast to the conventional practice, Applicant's pending application Ser. No. 09/293,089 filed on April 16, 1999, now U.S. Patent No. 6,341,354, discloses an energy-conserving motherboard and computer each comprising keep-alive random access memory for saving previous activities thereto and thus rendering the energy-conserving computer instantly accessible from the suspend state. The so-called STR (i.e., Suspend To Ram) motherboards and the so-called IAPCs (i.e., instant accessible PCs or computers) currently produced are respectively the energy-conserving motherboard and computer disclosed in Applicant's pending application Ser. No. 09/293,089, now U.S. Patent No. 6,341,354. While there are some differences in energy savings and quickness in returning to operation between the standby and the suspend states, a conventional computer placed into either state is deemed inoperable because information processing is basically ceased and requires a wakeup process to resume to the normal operating state.

In the Claims

Claims 11, 15, 16, 19, 20, 23, 29 and 30 have been amended as follows:

11. An energy-conserving motherboard having multiple operating functions, comprising:
    (a) first power-distributing circuitry actuatable for providing a first operating function, wherein said first power-distributing circuitry is arranged for establishing power connection with main microprocessor circuitry;
    (b) second power-distributing circuitry actuatable for providing a second operating function that is not required [does not require] to activate said main microprocessor circuitry; [and]

[1] Brackets "[]" indicate deletions and underlining "__" indicates insertions.

(c) third power-distributing circuitry actuatable for providing a standby function that is not required to actuate said first nor said second power-distributing circuitry, wherein said third power-distributing circuitry is arranged for establishing power connection with keep-alive memory circuitry for storing information needed for resuming said first operating function or said second operating function; and

(d) control means for selectively activating or deactivating said first power-distributing circuitry and said second power-distributing circuitry, so as to selectively [respectively] provide said first operating function, [and] said second operating function and said standby function, wherein said control means is arranged for having power connection with said third power-distributing circuitry.

15. The energy-conserving motherboard of claim 11, wherein said second power-distributing circuitry is arranged for establishing power connection with audio circuitry so as to provide said second operating function for producing audio information without activating said main microprocessor circuitry.

16. The energy-conserving motherboard of claim 11, [further comprising a third power-distributing circuitry for providing s standby function to allow both said first power-distributing circuitry and said second power-distributing circuitry to be deactivated,] wherein said control means is adapted in a manner for firstly reactivating said second power-distributing circuitry to provide said second operating function when detecting a reactivating signal.

19. The energy-conserving motherboard of claim 11 [17], wherein said control means is adapted in a manner for activating said second power-distributing circuitry at a condition selected from the group consisting of when said first power-distributing circuitry is activated or deactivated, when said third power-distributing circuitry is activated or deactivated, and their combinations.

20. The energy-conserving motherboard of claim 11 [17], wherein said control means is adapted in a manner for selectively (i) activating said first power-distributing circuitry and said second power-distributing circuitry at the same time to provide a full operating function, (ii) activating said second power-distributing circuitry and said third power-distributing circuitry without activating said first power-distributing circuitry to provide an energy-conserving operating function, (iii) activating only said second power-distributing circuitry to provide an independent energy-conserving operating function, and (iv) activating only said third power-distributing circuitry to provide only said standby function.

23. An information-processing apparatus having multiple operating functions, comprising:

(a) a first group of circuitry actuatable for providing a first operating function, wherein said first group of circuitry comprises main microprocessor circuitry;

(b) a second group of circuitry actuatable for providing a second operating function that is not required [does not require] to activate said main microprocessor circuitry;

(c) a third group of circuitry actuatable for providing a standby function to allow at least said first group of circuitry when deactivated to be reactuatable for providing said first operating function, wherein said third group of circuitry comprises keep-alive memory circuitry for storing information needed for resuming said first operating function or said second operating function;

(d) power providing means for providing power at least to said first group of circuitry, said second group of circuitry, and said third group of circuitry; and

(e) control means for controlling said power providing means to selectively activate said first group of circuitry, said second group of circuitry, and said third group of circuitry, so as to respectively provide said first operating function, said second operating function, and said standby function.

29. The information-processing apparatus of claim 23, wherein said third group of circuitry comprises [standby circuitry including] (i) said keep-alive random access memory for storing task information to be reactivated and (ii) control circuitry responsive to a reactivating signal for restoring said task information, so as to provide said standby function for deactivating and reactivating said task information.

30. The information-processing apparatus of claim 23, wherein said third group of circuitry is adapted to comprise said keep-alive random access memory for storing task information to be reactivated and said control means is adapted to comprise standby circuitry responsive to a reactivating signal for restoring said task information, so as to provide said standby function for deactivating and reactivating said task information respectively associated with said first operating function and said second operating function.